

PRESENCE OF *MASTIGOCLADOPSIS JOGENSIS*  
(CYANOPHYCEAE, MASTIGOCLADOPSIDACEAE)  
IN CORSICA (FRANCE)

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ABSTRACT - *Mastigocladopsis jogensis*, so far only known from a collection from India, has been rediscovered in Corsica (France). The morphology of the sample is described and the taxonomic position of the genus *Mastigocladopsis* in relation to the genus *Nostochopsis* is discussed.

RÉSUMÉ - *Mastigocladopsis jogensis* jusqu'à maintenant seulement connu d'une récolte de l'Inde a été retrouvé en Corse (France). La morphologie de cet échantillon est décrite et la position taxinomique du genre *Mastigocladopsis* par rapport au genre *Nostochopsis* est discutée.

KEY WORDS : Cyanophyceae, *Mastigocladopsis*, *Nostochopsis*.

During a stay at the field station STARESO at Calvi in Corsica (France) in September 1989, we had the opportunity to collect a freshwater blue-green alga with a thallus resembling a *Nostoc* or a *Rivularia* colony, but which proved to be *Mastigocladopsis jogensis* Iyengar et Desikachary (1946) after microscopic study of the sample. The genus *Mastigocladopsis* belongs to the Stigonematales and is closely related to the genera *Mastigocladus* Cohn ex Kirehn. and *Nostochopsis* Wood ex Bornet et Flahaut. It differs from the genus *Nostochopsis* by having reverse V-shaped branches and from the genus *Mastigocladus* by the presence of lateral heterocysts.

The alga was found in the small stream Marsolinu (Département Haute Corse, E of Cherchisani, 12km S of Calvi, 42°27'N, 8°44'E) in the granitic region of Corsica at an altitude of 170m. It was growing together with *Hildenbrandia rivularis* (Liebm.) J. Ag. The blue-green colonies of *Mastigocladopsis*, up to 4cm in diameter, were attached to submerged stones. The soft colonies are hollow and irregularly lobed. The thallus consists of an intri-

cate mass of branching filaments. A hyaline sheath is sometimes visible, often at the branching points. The trichome is torulose or only slightly constricted at the cross-walls. Cells are spherical to barrel-shaped in young trichomes (figs. 1e, 3d), later becoming cylindrical and generally longer than wide, 2.0-4.8 $\mu$ m wide and 2.6-18.0 $\mu$ m long. The end cell is tapering and slightly pointed. The heterocysts are generally lateral (figs. 1a, 2a, 3a) or terminal on short branches one to three cells long (figs. 3b, 2c); less than 5% are intercalary. The heterocysts are roughly spherical to ovate, from equal diameter to elongated, 6.2-9.6 $\mu$ m wide and 5.4-12.0 $\mu$ m long. Branching occurs profusely. Two types of branching are observed: first, the typically reverse V-shaped mastigocladaceous branching (figs. 1a, c, d) very closely resembling those in *Mastigocladus* Cohn ex Kirchn. or *Herpyzonema* Weber-v. Bosse; secondly, the true lateral branching resulting from the longitudinal division of a cell. Sometimes, after the formation of a branch, the cell of the main filament forming this structure elongates gradually. The cell therefore becomes very much extended with the branch being situated in the middle (fig. 3b). Hormogonia have short barrel-shaped cells (fig. 3c), 3.4-4.2 $\mu$ m wide and 2.4-3.8 $\mu$ m long.

The presence of both reverse V-shaped and true lateral branching, as well as lateral and terminal heterocysts, places this alga in the genus *Mastigocladopsis* described by Iyengar & Desikachary (1946) from India. Our specimen very well corresponds to *M. jogensis* as far as the morphology of the trichome and the dimensions of the cells are concerned. It only differs by the morphology of the thallus: thus *M. jogensis* "formed tiny gelatinous expansions on submerged stones in the stream" whereas our alga has hollow colonies. To our knowledge this species has not been recorded since the collection in India.

Seurat & Frémy (1936) recorded from Tunisia an alga also possessing lateral and terminal heterocysts, which they refer to *Hapalosiphon laminosus* Hansg. (= *Mastigocladus laminosus* Cohn). Iyengar & Desikachary (1946) and Desikachary (1959) place this species in the genus *Mastigocladopsis* as *M. freynii*. However, in contrast to what is stated by these authors, Seurat & Frémy explicitly noted that their alga did not show reverse V-shaped branching; this collection must thus be considered as *Nostochopsis*.

*Mastigocladopsis* has a very close resemblance to *Nostochopsis* Wood ex Bornet et Flahaut in its general appearance and in the presence of lateral and pedicellate heterocysts. The two genera only differ by the reverse V-shaped branchings which are normally absent in the genus *Nostochopsis*. Iyengar & Desikachary (1946) established the new family Mastigocladopsidaceae which differs from the Nostochopsidaceae only by the presence of the reverse V-shaped branching. However, several authors (Desikachary, 1959; Frémy & Feldmann, 1934) mention this type of branching also in *Nostochopsis* and one may wonder whether *Mastigocladopsis jogensis* is not simply a growth form of a *Nostochopsis* species; this is also an indication that the

creation of families based on the presence of reverse V-shaped branches is hardly justifiable. The genus *Nostochopsis*, mainly known from tropical regions, is recorded in Europe only from the south of France (Frémy & Feldmann, 1934) and from Italy (Del Grosso, 1982).

#### ACKNOWLEDGEMENTS

I thank Dr. V. Demoulin for reading the manuscript and Mr. J.T. Palmer for improving its English. This study was performed in the framework of the Belgian F.R.F.C. contract 2.4508.88.

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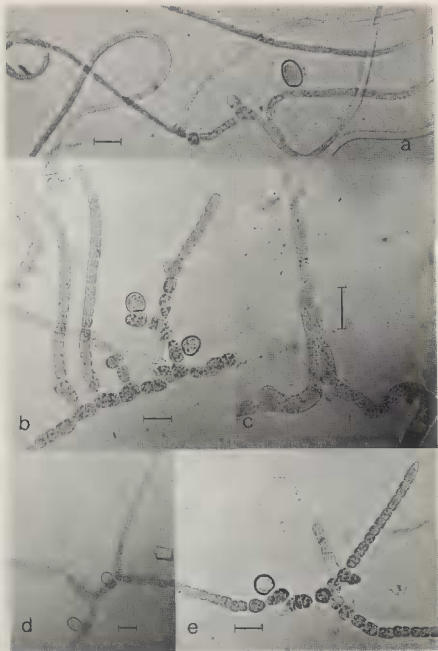


Fig. 1 - *Mastigocladopsis jogensis* (bar = 10µm) (a, c, d: reverse V-shaped branching; e: young trichome with barrel-shaped cells).

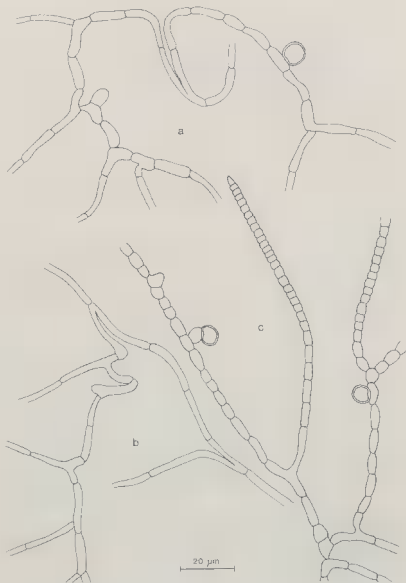


Fig. 2 - *Mastigocladopsis jogensis* (a, b: reverse V-shaped branching; a, c: sessile lateral heterocysts; c: pedicellate lateral heterocyst).

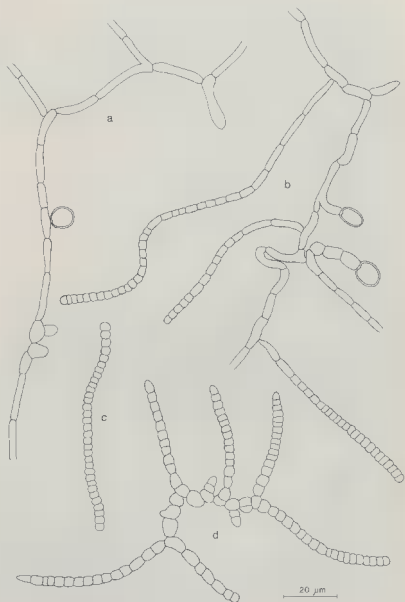


Fig. 3 - *Mastigocladopsis jogensis* (a: sessile lateral heterocyst; b: pedicellate lateral heterocyst; c: hormogonium; d: young trichome).